REMARKS

Claims 30-32 and Paragraphs **[0030]**, **[0033]** and **[0034]** have been amended. Subsequent to the entry of the present amendment, claims 1-4, 12-15, 20-24, 30-33 and 35 are pending and at issue. These amendments and additions add no new matter as the claim language is fully supported by the specification and original claims.

I. Election/Restrictions

The Office Action alleges that Applicants made an election **without** traverse of claims and elected claims 1-4, 12-15, 20-24, and 30-33 in the reply filed June 6, 2005 and that claims 5-11, 16-19, 25-29 and 34-37 are withdrawn from consideration as being drawn to a nonelected species, there being no allowable generic or linking claim. This is not accurate.

In the Office Communication mailed March 23, 2005, there were generic claims listed, namely claims 1, 12-14, 20, 21 and 30-33, and upon allowance of a generic claim, Applicants will be entitled to consideration of claims to additional species. There was also four species listed, with the first having claims 2-4, 16, 22-24 and 35. In the election response filed on June 2, 2005, Applicants elected claims 1, 2-4, 12-14, 15, 20, 21, 22-24, 30-33 and 35 **with traverse**.

Accordingly, claims 1-4, 12-15, 20-24, 30-33 and 35 are pending in the application.

II. Objections to the Drawings

The Office Action objects to Figures 1-5, 8 and 8 and alleges that they should be designated by a legend such as -- Prior Art – because these figures are the same as the figures filed in application 10/067,029, filed February 4, 2002, more than one year prior to the filing of this application. Applicants respectfully disagree with this objection.

The patent application 10/067,029 indicated in the Office Action was published on August 7, 2003 as US Patent Application 2003/0148289, less than one year prior to the filing of the present application on December 29, 2003. As such, it would not be considered prior art to the present application and Applicants respectfully request withdrawal of this objection.

III. Objections to the Specification

A. The disclosure was objected to because of various informalities. In paragraph [0030], the abbreviation "AFT" should read "AFM". In paragraph [0033], a comma should be inserted prior to the term "such" in line 6. In paragraph [0034], the space between the letter "b" and "y" should be deleted. On page 11, the term "Claims" should be replaced with a phrase, such as "What Is Claimed Is:" or "What We Claim Is:".

Applicants have amended the specification to incorporate the changes suggested in the Office Action. Applicants respectfully request withdrawal of this objection.

B. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. In particular:

The specification fails to provide antecedent basis for the term "organic elements" in disclosing the makeup of the nanocodes as recited in claim 30.

The specification fails to provide antecedent basis for the term "inorganic elements" in disclosing the makeup of the nanocodes as recited in claim 31.

The specification fails to provide antecedent basis for the term "biochemical elements" in disclosing the makeup of the nanocodes as recited in claim 32.

Applicants have amended claims 30, 31 and 32 to clarify that the organic, inorganic or biochemical elements are included in the nanotube assemblies that are part of the makeup of the nanocodes. The nanocodes 300 include a reactive molecule 302 with one or more nanotube

assemblies 320. The nanotube assemblies 320 each include a carbon nanotube 322 and a number of additional molecules 324 attached to the surface of the nanotubes 322. The nanotube assemblies 320 are similar to the nanotube assemblies 200 described in FIG. 2. (see paragraphs [0023] and [0024]). FIG. 2 shows a carbon nanotube assembly 200, but paragraph [0019] states that although "carbon nanotubes are shown in FIG. 2 as the tag elements, other organic, inorganic or biochemical structures can be used in alternative embodiments." See also paragraph [0018], which states that the "tag elements may be organic, inorganic or biochemical elements that can be distinguished by an atomic force microscope (AFM) or a scanning tunneling microscope (STM)." As shown above, the specification does disclose that organic, inorganic or biochemical elements may be used in the nanotube assemblies in the makeup of the nanocodes. Accordingly, Applicants respectfully request withdrawal of this objection.

IV. Rejections under 35 U.S.C. § 103

A. Claims 1-4, 12-15, 20-23, 30 and 33 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over US 2004/0058328 (Chan et al.) in view of US 2003/0033863 (Ashby et al.). Applicants respectfully traverse this rejection.

The Office Action alleges that "Chan et al. discloses an apparatus for detection, identification, and sequencing of biomolecules, comprising: a probe molecule (410) attached to a nanobarcode (420) comprised of a plurality of carbon nanotubes or fullerenes. The reference further discloses that the nanobarcodes (420), coded probes, and/or target molecules may be attached to a surface and aligned for analysis by scanning probe microscopy." The Office Action correctly states that "Chan et al, fails to disclose using a scanning array for simultaneously scanning the molecules." The Office Action further alleges that "Ashby et al. discloses an atomic force microscope for use in screening potential interactions between biological molecules comprised of an array of scanning probe tips, as shown in Figure 8. Additionally, the reference to Ashby et al, discloses that the AFM probe array, the individual probes, the surface, or a

combination of the above may have independent means for position control." The Office Action finally alleges that "Providing a scanning array for simultaneous scanning would have been obvious to one of ordinary skill in the art as means of more quickly detecting and identifying a plurality of molecular samples."

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify a reference or to combine the teachings of multiple references. Second, there must be a reasonable expectation of success. Third, the prior art must teach or suggest all of the recited claim limitations. Of course, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure.

First, Applicants submit that it is not at all obvious that one of ordinary skill in the art would be motivated to combine the disclosures of Chan et al. and Ashby et al. We submit that it would be extremely unlikely that one of ordinary skill in the art would be motivated to combine the two disclosures and come up with the present invention, in that Chan et al. involves alignment of nanobarcodes, coded probes and/or target molecules on a surface and Ashby et al. involves individual AFM heads that analyze individual sample areas, as discussed below.

Second, Applicants submit that Chan et al., Ashby et al. or a combination of them does not teach or suggest all of the recited claim limitations. Chan et al. discloses various embodiments of nanobarcodes, coded probes and/or target molecules bound to coded probes attached to a surface and aligned for analysis (Chan et al., paragraph [0023]). Ashby et al. discloses a plurality of AFM heads 50 arranged along a straight line, supported by a support structure 64 and rails 58. Ashby et al. also discloses a plurality of sample areas 72 on a surface with spacing equal to the spacing between the AFM heads 50. As can be seen in the specification and Figures 7 and 8 of Ashby et al., each of the AFM heads 50 has its own

associated sample area 72. The combination of Chan et al. with Ashby et al. would teach the alignment of nanobarcodes, coded probes and/or target molecules on each sample area 72 so that each individual AFM head 50 could analyze each individual sample. There is no indication that more than one AFM head 50 is used to analyze any individual sample area 72.

In contrast, the present invention discloses a "surface analysis device for identifying molecules by *simultaneously scanning* nanocodes on a surface of a substrate" (claim 1, emphasis added). Claim 1 further requires that this simultaneous scanning is accomplished by using "a *scanning array* capable of simultaneously scanning the nanocodes on the surface of the substrate; and an analyzer coupled with the scanning array capable of receiving simultaneously scanned information from the scanning array and identifying molecules associated with the nanocodes" (emphasis added) (see also paragraph [0031]). Independent claims 15, 20 and 33 also have similar limitations.

Nowhere in Chan et al. or Ashby et al. or a combination of them is it disclosed to simultaneously scan nanocodes on the surface (i.e., sample area) with the scanning array. The Office Action alleges that Ashby et al. discloses a scanning array. Applicants respectfully disagree. While Ashby et al. does disclose multiple AFM heads, it should not be considered the same as a scanning array capable of simultaneously scanning the nanocodes on the surface of the substrate, as disclosed in the present application. This is because each AFM head in Ashby et al. has its own associated sample area to analyze, stating that "a plurality of binding interactions may be measured simultaneously" but only the "interactions between each probe and the contents of each sample area in one row of the sample array are detected." (Ashby et al., paragraph [0042]). There is no teaching of using more than one AFM head on a sample area to simultaneously scan the nanocodes to identify a molecule.

In addition, claim 1 further requires "an analyzer coupled with the scanning array capable of receiving simultaneously scanned information from the scanning array and identifying molecules associated with the nanocodes." As discussed above, Chan et al. and Ashby et al. fail to disclose simultaneously scanning. Chan et al. and Ashby et al. also fail to disclose receiving simultaneously scanned information from the scanning array and identifying molecules associated with the nanocodes, as required in claim 1.

For at least the reasons discussed above, it is submitted that Chan et al., Ashby et al. or the combination of them do not describe all the elements and limitations recited in the amended claims and there is no motivation to combine their teachings. Accordingly, Applicants request that this rejection of claim 1, with dependent claims 2-3, 12-14, claim 15, claim 20, with dependent claims 21-23, 30-32 and claim 33, with dependent claim 35 under 35 U.S.C. §103(a) be withdrawn.

B. Claims 4 and 24 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over US 2004/0058328 (Chan et al.) in view of US 2003/0033863 (Ashby et al.) as applied to claims 2 and 23 above, further in view of US 5,047,633 (Finlan et al.). Applicants respectfully traverse this rejection.

As discussed above, Applicants have shown that Chan et al. and Ashby et al. fail to teach each and every element of claims 1 and 20, and there is there is no motivation to combine their teachings. Claim 4 depends on claim 1 and claim 24 depends on claim 20. Claims 4 and 24 should be allowable for at least those same reasons discussed above. The addition of Finlan et al. cannot remedy the failure of Chan et al. and Ashby et al. to render the invention obvious, and the combination of them does not disclose or suggest every limitation of claims 4 and 24. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

V. Conclusion

In view of the above amendments and remarks, reconsideration and favorable action on all claims are respectfully requested. In the event any matters remain to be resolved, the Examiner is requested to contact the undersigned at the telephone number given below so that a prompt disposition of this application can be achieved. No fee is believed due in connection with this Response. However, The Commissioner is hereby authorized to charge any fees that may be associated with this communication, or credit any overpayment to Deposit Account No. 07-1896.

Respectfully submitted,

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